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JOHNNY B. BRADBERRY
SECRETARY

April 7, 2006

**State Project No.: 450-17-0025, 450-17-0026, 450-18-0100
& 450-90-0199**

**Federal Project No.: ER-ERP1(073)
I-10 Bridge over Lake Pontchartrain
Orleans and St. Tammany Parishes**

Re: Latest Project Information

1. questions and answers
2. Comments on Special Provision, section 820
3. New borings sheets, stamped for informational purposes only
4. Test Pile Program Permit

If you need any further information, please contact Arthur D'Andrea, Project Manager, @ 225-379-1319.

I-10 Bridge Over Lake Pontchartrain
Project No.450-17-0025
Questions and Answers
April 7, 2006

No.	Questions	Answers
1	Is testing and sampling of elastomeric bearings to be waived? If not, what specification is testing and sampling to be performed to?	At this time, sampling and testing of elastomeric bearings can not be waived. LADOTD Standard Specifications and Material Testing Manual shall be followed for the sampling and testing of elastomeric bearings.
2	<p>a. Most of the new soil borings in the plans do not have any information for the first 80'. Can this information be available to us?</p> <p>b. Does DOTD already have the dredging permit?</p> <p>c. Would it be possible to get plan sheets 321-329?</p> <p>d. If dredging was necessary, can we dispose of the spoils at the site of the dredging?</p>	<p>a. On many new deep borings, we don't have the information for the first 80'</p> <p>b. We have applied for the Permit and the Public Notice Period is almost completed, but we will not receive the Joint Use Permit until the Public Notice Period has expired and possible questions have been answered.</p> <p>c. Plan sheets 321 to 329. We have received a couple more sheets but the there is no time to release them. I will try to get an OK to release them as Informational Sheets.</p> <p>d. Working on the dredging question.</p>
3	Can a construction joint be used between the bent and the deck on the slab span portion of bridge?	Yes.
4	If the precast cap alternate(drawing 164) is used on crossover bents will the piles require a pile plug as shown on drawing 123 Pile Connection No.2 (interior vertical pile)	On crossover bents, if precast caps are used, we need 9" embedment similar to the cast-in-place detail. Steel cages and extended concrete plugs are not required.
5	The required permanent electrical work depicted on contract 1 drawings includes the permanent electrical work for the high level bridge(contract 2). Is it the intent of the LADOTD that the bid items set up for electrical work in contract 1 include the cost for furnishing and installing the permanent electrical work on the high level bridge(contract 2) ?	Yes
6	On the bent details, what is the meaning	This project is designed using LRFD

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	of the maximum factored design load for the piles?	<p>(<u>Load Factor</u> and <u>Resistance Design</u>) method. Therefore, the information presented for piles is little different from what you used to see. In old method for pile design, a design load (service load without any load factors) and a factor of safety were given as main design information. However, in LRFD method the factor of safety is built in using load factors and resistance factor or ϕ factor. The pile information given for LRFD method includes the following:</p> <p>(1) The maximum factored load (shown on bent detail and pile data sheets in pile load data columns as factored load) This load is similar to the design load except including load factors.</p> <p>(2) The ultimate pile comp. capacity, ϕ factor and scour zone resistance (shown on pile data sheets in pile load data columns)</p> <p>The ultimate pile comp. capacity = factored load/(ϕ factor) + scour zone resistance</p> <p>The ultimate pile comp. capacity is equivalent to the design load times the factor of safety.</p> <p>The value shown on the ultimate comp. pile capacity column is the ultimate pile capacity we are trying to achieve. All factors of safety are included in this value.</p>
7	Would we allowed to use regular lateral load testing on piles in lieu of the statnamic testing?	Regular lateral testing on piles could be considered as a VE proposal. The instrumentation and analysis report are still required.
8	Will the contractor reimbursed for moves and equipment down time due to hurricanes?	See the Louisiana Standard Specifications For Roads and Bridges

Comments and Responses to Special Provision Section 820: Precast Segmental
Prestressing System

Page 7: (f) Ducts 1. Watertight ducts can only be achieved with plastic ducts or rigid steel pipes. The duct classification for this project under section 4 is in conflict with this requirement.

RESPONSE: Experience has shown that corrugated metal duct meeting the requirements of this specification are essentially watertight. Ducts meeting this specification will be considered acceptable. Note that, except for a few tendons at sign supports, all tendons for this contract are either external, or transverse 4-strand tendons. The ducts required for these tendons are strictly watertight.

Page 12: (l) Grout Materials and Properties: "All grout used for the prestressing system on this project shall be Commercial Prepackaged Enhanced Grout exhibiting thixotropic properties, as described herein." For commercial prepackaged grout it is not necessary to define the ingredients as listed in item 3, because all grouts have to meet the requirements as set forth in PTI. On top of it, all pre-packed grouts are proprietary in nature and the ingredients or mixtures are not disclosed.

There are grouts available on the market with a good performance record which are not thixotropic, but fulfill all the PTI requirements. In addition it is very hard to define and measure the thixotropic nature and behavior. I would recommend not making this physical behavior a requirement for the grout to be accepted.

RESPONSE: Section 3 lists some general requirements of materials used for grout, such as not using admixtures containing chlorides, sulfites, fluorides or nitrates. It does not require specific admixtures, or materials. Therefore, the grout producer is given latitude in the formulation of their specific grout. Several commercially available prepackaged grouts have been supplied on projects using the requirements listed in this specification.

We strongly recommend the use of grouts exhibiting thixotropic properties in aggressive environments, such as bridges in coastal and marine environments. As noted in the specification, grouts shall meet the properties listed in the specification. These properties are listed in Tables 1, 1A and 2. These requirements are identical to those contained in the PTI Guide Specification and grouts meeting these properties shall be considered acceptable for this project. As noted above, several commercially available prepackaged grouts have been supplied on projects using the requirements listed in this specification.

Page 20: Installation of Ducts (b) For plastic ducts the support and tie spacing should be less than 4 feet and depend on the diameter and shape of the duct and if the ducts are filled with strands prior to concreting. In general for flat transverse ducts the spacing should be ~3 ft if the strands are placed inside the duct and 1 ft if the duct is empty. For larger round ducts the spacing maybe 2 and 4 ft. The spacing also depends on where the duct is in the section, whether it is in the top slab or deep down in the web and

exposed to large hydrostatic pressure and increased heat of hydration.

RESPONSE: As noted in the referenced section, "ducts shall be supported at intervals necessary to prevent deflection and/or displacement of the ducts, and shall not exceed four (4) feet". This section also gives the tolerance on placement of plus or minus 1/3 inch. Therefore, 4 feet is the maximum support spacing and tighter support should be used to achieve the placement tolerance as noted in the specification.

Page 21: (g) Item 6: A low point inlet and outlet drain for the longitudinal tendons would mean that the drain is located between the deviation blocks. To have this low point vent free draining it would require that the duct is at least 3 inches above the bottom slab, otherwise it will be extremely difficult to make a connection and seal it afterward to hold the grouting pressure.

RESPONSE: As noted in the plans and this specification, the low point inlet should be located between the deviation blocks at the low point of the tendon, accounting for longitudinal grade. Applying this requirement to construction, the inlet should be placed as close to the low point as is practically possible. The grout inlets should connect to the PE duct as close to the low point as possible, but attaching them to the rigid pipe duct in the deviators is not practical and necessary. The grout inlets should be located as near to the bottom of the duct as possible. This means they may actually be located at some angle up from straight downwards (say approximately 30 degrees). The distance between the PE duct and the bottom slab is approximately 2 1/2", depending on the actual diameter of the PE duct. Therefore, these grout inlets can be placed close to downwards, but at a small angle upwards as noted above.

Page 22: Pre-Grouting Air Pressure Test of Duct System (b) 10 psi air pressure pre-grouting test maybe acceptable for a longitudinal duct with a rigid PE pipe connected to a steel pipe or deviation pipe, however the required re-test may also be a problem for these tendons. In a re-test situation the plastic duct expands during the first test and shrinks after the pressure is released. This may affect other good joints which will leak under subsequent testing.

RESPONSE: The purpose of the air pressure test is to help ensure that there are no leaks during tendon grouting. The retest is necessary only if a tendon fails to meet the initial air test. It is not required for every tendon. If a tendon does not meet the initial air pressure test, then connections must be checked, corrected and retightened as necessary, such that it can pass a subsequent retest. In this way, there is reasonable assurance that there will not be leaks during grouting.

Page 22: For regular corrugated plastic ducts, the 10 psi pressure is not acceptable and strictly cannot be achieved. FIB recommends 1.5 psi which has been adopted by FDOT in their latest spec revision.

RESPONSE: Air pressure testing of transverse tendons (corrugated plastic duct) is done after the concrete is placed and is really a check of the seal around the end cap and the anchor. Since the concrete is already cast around the

duct, the air pressure should not damage the duct. (Note that grouting pressures will be in excess of the 10 psi.)

Page 23: (a) General 8: Flushing of tendons should be avoided whenever possible! Residual water-soluble oil on the strands is not required to be flushed, since it will not eliminate the bond of the tendon. The oil film on the strands will only reduce the adhesive portion of the bond. The larger mechanical portion of the bond equation is still given by the shape and twist of the strands, therefore it is not recommended to flush. When a tendon is flushed, it is not possible to get the water out of the interstices between the wires due to capillary action, therefore this will create immediately a corrosion potential which we try to avoid.

RESPONSE: We agree that flushing of tendons should be avoided whenever possible and done only in emergency circumstances, such as when there are blockages, or other difficulties during the actual grouting of a tendon. Flushing of every tendon is not a requirement (or a recommendation) for this project. The small amount of packaging oil that is present on the strand for storage and shipment of strand packs is not required to be removed from the strand.

The portion of the specification to which the comment refers pertains only to tendons where a lubricant is used to reduce friction. As a matter of practicality, we do not anticipate many difficulties with excessive friction to the extent that lubricants are necessary. If a lubricant were to be used, the contractor may submit the specific lubricant, along with a request to waive the flushing requirements based on the choice of lubricant, to the Engineer for consideration.

Page 24: 9. 30 days between removing the segment and stressing and grouting is too long and in conflict with page 19 (b) 3. which requires all tendons to be grouted within 7 days after stressing. Since the transverse tendons will be stressed prior to lowering the wing forms in the casting bed, the grouting should be done earlier.

RESPONSE: The 30 day requirement is a general requirement for transverse tendons in segmental construction, where it is acceptable for segments with empty transverse ducts to sit in a casting yard for up to 30 days. In this way the contractor can wait until a large number of segments are available for strand installation, tendon stressing and grouting.

However, since some individual strands in each anchor are stressed before dropping the forms for this project, these tendons must be stressed and grouted within the 7 day time limit. The point of the requirements is not to have permanent strand present in ducts for over 7 days before grouting.

Page 25: Item 4: A modulus test shall be made mandatory and not only if the elongations fall outside of the 7 % rule.

RESPONSE: Our experience has been that extremely few tendons fall outside of the allowable range for elongations. It also has been our experience that modulus test performed on-site often produce erroneous and confusing results. (The modulus supplied from the strand supplier is typically more

accurate.) Therefore, a specific modulus field test is not required for this project, but the contractor can elect to perform a modulus test to try and verify the validity of an already stressed tendon. If the contractor or the post-tensioning supplier desire, modulus tests can be performed above and beyond the requirements of this specification.

Page 25: Item 7: Temporary PT bars shall not be used more than 25 times. The re-usage depends on the physical condition of the threads and their stress level. The bar manufacturer should give the limits. More attention should be given to the coupler since its grade has a lower strength than the bar.

RESPONSE: We concur that temporary bars have a maximum number of usages and that these requirements should be called out by the bar manufacturer. The specification merely recognizes that new bars are not required for every span.

Page 26: Item 8: Cutting with a plasma cutter should be allowed.

RESPONSE: The limitations on cutting of strand are set to limit heating of the permanent strand. As such, abrasive saw cutting is allowed, while flame cutting is not allowed. Alternative methods (along with supporting data) that do not heat the strand to the extent that the properties of the strand and anchorages are compromised can be submitted to the Engineer for review.

Page 27: Grouting Mock-Up Test: In the test setup a pressure requirement is missing! In general, the clear transparent plastic ducts available on the market are only rated for ~ 20 – 30 psi. Higher pressure can only be applied to fiber reinforced ducts which have only limited transparency and voids cannot be easily detected. For all systems the tendon ends will have to be closed with anchors and grout caps.

RESPONSE: The specification gives the geometry and general requirements for the grouting mock-up test. It also requires specifics of the test, including materials, equipment and procedures, to be submitted to the Engineer. Proposed grouting pressures should be included in the submittal.

Page 29: Item 4: Clarification: A colloidal mixer has two tanks, one is the mixing tank and the other one is the holding tank. They do not alternate duties!

RESPONSE: Using a mixer that has one mixing tank and one holding tank is acceptable.

Page 30: (h) Cleaning and Flushing Tendons: See previous comments for page 23.

RESPONSE: As noted previously, we agree that flushing of tendons should be avoided whenever possible and done only in emergency circumstances. The referenced portion of the specification notes that tendons shall not be flushed with water, except when otherwise specifically permitted by the

Engineer.

Page 31: Item E: When the grouting is interrupted and the grout has setup and cannot be moved, flushing will not be successful. In this case the contractor shall submit a repair procedure and re-grout the tendon by using vacuum injection procedure or by drilling additional inlet ports at the end of the grout column.

2. Grouting Pressure A: For transverse flat ducts the grouting pressure should be kept below 75 psi. In general, these tendons are very short and don't need this pressure. However if the duct is close to the surface (high points), the pressure can spall the concrete cover.

RESPONSE: We agree that flushing will not work for every instance when blockages occur. However, as a first procedure when blockages occur, it many times does work and prevents costly and time-consuming repairs. We agree that if flushing does not work, further repair procedures will become necessary.

Our experience has not shown any problems with grouting transverse tendons at pressures of approximately 75 psi. The 75 psi pressure for normal grouting operations is consistent with the PTI Guide Specifications.

Page 32: 4. Post Grouting Measures at Injection and Vent Ports

C: Topping off high point vents is not recommended! If the grout level drops in the high point vent, that means there is a larger void inside of the duct which cannot be filled without vacuum injection.

RESPONSE: Prior to the grout setting, drops in the grout can occur due to subsidence or bleed. In these instances, using a small amount of grout to top off the vent can prevent additional repairs. Note that additional inspection of anchorages by drilling out the grout ports is required. Regrouting of any voids found is required, with vacuum grouting allowed if approved by the Engineer.

Page 33: (3) 100 psi for the described method is way too high a pressure. The method described to fill a void behind the anchor by inserting a tube and filling it with grout is not recommended. An air pocket is not a large cavity and it will continue on the top of the tendons for some length. Topping it off with a tube will not fill these voids.

RESPONSE: The 100 psi is a maximum pressure. The specification encourages low pressures.

Page 33: (6) The method described is not practicable. The system needs an inlet and an outlet and then the grout is injected under pressure.

RESPONSE: The regrouting method described is the minimum required procedure required for the project. If the contractor, or post-tensioning supplier desire, they may submit alternative procedures (such as vacuum

grouting) to the Engineer for acceptance.

Page 34: Protection of Prestress Anchorages (d) All anchors should have a permanent grout cap.

RESPONSE: Permanent anchorage end caps are required for those tendons as specified in this specification, or in the plans. Specifically, all transverse tendons and tendons with anchorages located on exterior surfaces require permanent anchorage end caps. The contractor, or the post-tensioning supplier, can elect to provide permanent anchorage end caps at every anchorage above and beyond the project requirements.

No.	DATE	REVISION DESCRIPTION	BY	SHEET
DESIGNED	CHECKED			
DETAILED	CHECKED			
DATE				

1-10 BRIDGE OVER LAKE PONTCHARTRAIN
ROUTE I-10
ORLEANS / ST. TAMMANY PARISHES, LOUISIANA

PARISH	FEDERAL	STATE	PROJECT
ORLEANS / ST. TAMMANY	ERP(073)		450-17-0025 / 450-18-0100

SHEET NUMBER

325

[illegible][illegible][illegible]

CORRELATION OF PENETRATION RESISTANCE AND SOIL PROPERTIES			
SOIL	DESIGNATION	"N" (blows per 12 in.)	Approximate "qu" (tons per sq. ft.)
SAND AND SILT	RELATIVE DENSITY		
	VERY LOOSE	LESS THAN 4	
	LOOSE	4 - 10	
	MEDIUM DENSE	10 - 30	
CLAY	VERY DENSE	30 - 50	
	VERY LOOSE	OVER 50	
	CONSISTENCY	LESS THAN 2	LESS THAN 0.25
	VERY SOFT	2 - 4	0.25 - 0.50
	MEDIUM STIFF	4 - 8	0.50 - 1.00
	VERY STIFF	8 - 15	1.00 - 2.00
	HARD	15 - 30	2.00 - 4.00
		OVER 30	OVER 4.00

MISCELLANEOUS:

- Location and Identification of thin-walled tube sample, ASTM D 1387
- Location and Identification of thin-walled tube sample, ASTM D 1387, with the use of a split spoon sampler and a coring device
- Location and Identification of SPT sample, ASTM D 1586
- No Coll, no preliminary 6 inches driving prior to securing SPT data
- No Generation, unable to drive split-socket sampler initial 6 inches of penetration
- No Recovery, unable to recover sample for testing or classification
- Disturbed sample recovered with thin-walled tube sampler
- Water Table depth below ground surface recorded at noted time after completion of borhole
- SOL TYPE nomenclature is based on ASTM D 2487

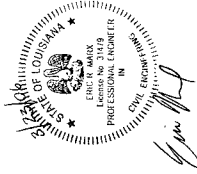
24 HRK.

WET UNIT WEIGHT	= Wet unit weight of in-place soil, (pounds per cu. ft.) determined by ASTM D 2166.
MOISTURE CONTENT	= Moisture content of in-place soil, expressed as a percentage of the dry weight of the soil, determined by ASTM D 2211.
LIQUID LIMIT & PLASTICITY INDEX	= Atterberg Limits and indices, ASTM D 4318 (f).
U	= Unconfined compressive strength, ASTM D 2166, (tons per sq. ft.).
qu	= Unconfined compressive strength, (tons per sq. ft.).
SPT	= Standard Penetration Test, ASTM D 1586, number of blows, N ₆₀ , per foot of penetration, unless amount of penetration is shown, otherwise.
UU	= Unconsolidated Undrained triaxial test, ASTM D 2850, compressive strength (tons per sq. ft.), of one specimen confined at noted pressure (pounds per sq. in.) (tons per sq. ft.).
C	= Soil angle of internal friction (degrees).
Δ	= Unconsolidated Undrained triaxial test, ASTM D 2850, three specimens (c in tsf, ϕ).
*	= Consolidated drained direct shear test, AASHTO T 256, (c in tsf, ϕ).
TV	= Torsion shear strength, (tons per sq. ft.).

STANDARD ABBREVIATIONS & DEFINITIONS		
MATERIAL:	COLOR:	STRUCTURE:
CL = Clay	BR = Brown	ALT = Alternating
CONC = Concrete	BK = Black	LAM = Laminated
GRAV = Gravel	BL = Blue	LEN = Lens
LIQ = Liquid	GR = Green	MOT = Motif
NP = Non-Plastic	GN = Pink	PKT = Pocket
ORG = Organic	RD = Red	STR = Streak
PEAT = Peat	WH = White	STR = Strata
PT = Pottery	YEL = Yellow	STR = Strata
TEXTURE:	FAILURE MODE:	
CO = Coarse	M.L. = Multiple Shear	
F = Fine	SL = Slump	
MED = Medium	V.S. = Vertical Shear	
	YLD = Yield	
		Shear Angle 60°S

THIS SIGNATURE AND SEAL IS AFFIXED TO THIS DRAWING AS CERTIFICATION THAT THE LABORATORY TESTING AND ANALYSIS WAS PERFORMED ACCORDING TO THE LISTED PROCEDURES. NO DESIGN COMPUTATIONS WERE PERFORMED OR REVIEWED BY ME.

FOR INFORMATIONAL
PURPOSES ONLY



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TEST PILE NO.									
SOIL TYPE AND COLOR	WET UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTICITY INDEX	SPT or UU	FAILURE MODE	SAMPLE NUMBER	DEPTH, FT	ELEVATION, FT
CLAY, stiff, gray, with sand pockets and shell fragments	112	53	62	37	1.07 @18	60'S	61	50	-60.3
CLAY, stiff, greenish gray, with shell fragments from 63 to 68"	107	48	75	48	1.35 @19	60'S	62	50	-60.3
CLAY, medium, greenish gray, with organics (wood)	101	32	62	33	0.65 @21	60'S	63	60	-70.3
CLAY, stiff, greenish gray -with calcareous nodules from 63" to 73"	125	26	64	40	1.48 @23	60'S	64	70	-80.3
CLAY, medium, greenish gray, with shell fragments	114	32	71	43	0.65 @25	60'S	65	80	-90.3
SAND, very loose, brown, with many shell fragments	28				N=WOH		66	80	-90.3
-0 percent passing No. 200 sieve at 100'	89	87	142	87	2.57 @30	60'S	67	90	-100.3
CLAY, very stiff, brown, with organics	23						68	90	-100.3
SANDY CLAY, stiff, gray, with sand pockets	126	23	31	13	1.44 @33	SL	69	100	-110.3
SAND, very dense, gray	18				N=78		70	100	-110.3
SAND, medium-dense, gray	21				N=21		71	100	-110.3
-1 percent passing No. 200 sieve at 100'	21				N=66		72	100	-110.3
-1 percent passing No. 200 sieve at 105'	25				N=60/5'		73	100	-110.3
-0 percent passing No. 200 sieve at 108'	23				N=84		74	100	-110.3
-0 percent passing No. 200 sieve at 112'	27				N=50/5'		75	100	-110.3
-0 percent passing No. 200 sieve at 121'	46	85	57		N=60/4"		76	100	-110.3
CLAY, stiff, gray, with sand pockets and shell fragments	111	44	65	41	N=17		77	100	-110.3
BORING NO.: B-22 STA: 323+71									
LATITUDE: N 30° 11' 35.4" LOCATION: New I-10 Centerline									
LONGITUDE: W 89° 48' 44.9" DATE TAKEN: 3/5/2006									
NOTE: Water depth 11-ft at time of drilling. LOG MILE: SOD LDR:									
TEST PILE NO.									
SOIL TYPE AND COLOR	WET UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTICITY INDEX	SPT or UU	FAILURE MODE	SAMPLE NUMBER	DEPTH, FT	ELEVATION, FT
CLAY, stiff, greenish gray, with silt and sand pockets	112	53	62	37	1.07 @18	60'S	61	50	-60.3
CLAY, stiff, greenish gray, with shell fragments from 63 to 68"	107	48	75	48	1.35 @19	60'S	62	50	-60.3
CLAY, medium, greenish gray, with organics (wood)	101	32	62	33	0.65 @21	60'S	63	60	-70.3
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CLAY, medium, greenish gray, with shell fragments	114	32	71	43	0.65 @25	60'S	65	80	-90.3
SAND, very loose, brown, with many shell fragments	28				N=WOH		66	80	-90.3
-0 percent passing No. 200 sieve at 100'	89	87	142	87	2.57 @30	60'S	67	90	-100.3
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SAND, medium-dense, gray	21				N=21		71	100	-110.3
-1 percent passing No. 200 sieve at 100'	21				N=66		72	100	-110.3
-1 percent passing No. 200 sieve at 105'	25				N=60/5'		73	100	-110.3
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CLAY, stiff, greenish gray -with calcareous nodules from 63" to 73"	125	26	64	40	1.48 @23	60'S	64	70	-80.3
CLAY, medium, greenish gray, with shell fragments	114	32	71	43	0.65 @25	60'S	65	80	-90.3
SAND, very loose, brown, with many shell fragments	28								

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No.	DATE	REVISION DESCRIPTION	BY	SHEET	DESIGNED	CHECKED	DETAILED	CHECKED	DATE

		1-10 BRIDGE OVER LAKE PONTCHARTRAIN ROUTE 1-10 ORLEANS / ST. TAMMANY PARISHES, LOUISIANA		PARISH	FEDERAL	STATE
				ORLEANS / ST. TAMMANY	ERP1(073)	PROJECT

450-17-0025 / 450-18-0100	PROJECT
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321	SHEET NUMBER
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[illegible][illegible][illegible]

<u>STANDARD ABBREVIATIONS & DEFINITIONS</u>		
<u>MATERIAL:</u>	<u>COLOR:</u>	
CL = Clay	BR = Brown	
CONC = Concrete	BL = Black	
GRAV = Gravel	BU = Blue	
LIN = Liner	GR = Grey	
GN = Gneiss	LN = Light	
LIQ = Lignite	GN = Green	
N.P. = Non-Plastic	PKT. = Pocket	
ORG = Organic	SK = Skin	
PET = Peat	STR. = Struck	
PT. = Portland Cement	WH. = White	
SAND = Sand	YEL = Yellow	
SH = Shell	<u>TEXTURE:</u>	
SILT = Silt	CO. = Coarse	
VFG = Vegetation	F. = Fine	
WD. = Wood	MED. = Medium	

<u>SOIL PROPERTIES:</u>	
= Wet unit weight of in-place soil, (pounds per cu. ft.) determined by ASTM D 2166.	
= Moisture content of in-place soil expressed as a percentage of the dry weight of the soil (%) determined by ASTM D 2216.	
= Atterberg Limits and Indices. ASTM D 4318 (s)	
= Unconfined compressive strength. ASTM D 2166, (tons per sq. ft.).	
= Unconfined compressive strength, (tons per sq. ft.).	
= Liquid Limit Penetration test, ASTM D 1585, number of blows, N _p , per 12 inches of penetration, unless amount of penetration is shown otherwise.	
= Unconsolidated Undrained triaxial test, ASTM D 2850, compressive strength (tons per sq. ft.), of one specimen confined at noted pressure (pounds per sq. in.).	
= Angle of internal friction, (degrees) per sq. ft.).	
= Soil angle of internal friction (degrees).	
= Unconsolidated drained direct shear test, ASTM D 2850, three specimens (in tsf., %).	
= Consolidated drained direct shear test, AASHTO T 236, (c in tsf., %).	
= Proctor compaction curve, (lb./cu. ft.).	
= Torque strength, (tons per sq. ft.).	

<u>WET UNIT WEIGHT</u>	<u>MOISTURE CONTENT</u>	<u>PLASTICITY INDEX</u>	<u>LIQUID LIMIT</u>	<u>UNCONF. COMPRESSIVE STRENGTH</u>	<u>UNCONSOLIDATED UNDRAINED TRIAXIAL TEST</u>	<u>ANGLE OF INTERNAL FRICTION</u>	<u>DIRECT SHEAR TEST</u>	<u>CONSOLIDATED DRAINED DIRECT SHEAR TEST</u>	<u>TORQUE STRENGTH</u>
γ	w	PI	LL	c _u	q _u	φ	c	c _d	T

MISCELLANEOUS:

- Location and Identification of thin-walled tube sample, ASTM D 1587
- Location and Identification of this-walled tube sample, ASTM D 1587.
with a note of this sample saved for consolidation testing
- Location and Identification of SPT sample, ASTM D 1586
- No Coll, no preliminary 6 inches driving prior to securing SPT data
- Standard Penetration Test
- No Recover, unable to recover sample for testing or classification
- Disturbed sample recovered with thin-walled tube sampler
- Water Table depth below ground surface recorded at noted time after
- SPT TYPE, noncyclic is based on ASTM D 2487

24 HRS.

CORRELATION OF PENETRATION RESISTANCE AND SOIL PROPERTIES			
SOIL	DESIGNATION	"N" (blows per 12 in.)	Approximate "qu" (tons per sq. ft.)
SAND AND SILT	RELATIVE DENSITY	LESS THAN 4	
	VERY LOOSE	4 - 10	
	MEDIUM DENSE	10 - 30	
	VERY DENSE	30 - 50 OVER 50	
CLAY	CONSISTENCY	LESS THAN 2	LESS THAN 0.25
	VERY SOFT	2 - 4	0.25 - 0.50
	MEDIUM STIFF	4 - 8	0.50 - 1.00
	VERY STIFF HARD	8 - 15 15 - 30 OVER 30	1.00 - 2.00 2.00 - 4.00 OVER 4.00

THIS SIGNATURE AND SEAL IS AFFIXED TO THIS DRAWING AS CERTIFICATION THAT THE LABORATORY TESTING AND ANALYSIS WAS PERFORMED ACCORDING TO THE LISTED PROCEDURES. NO DESIGN COMPUTATIONS WERE PERFORMED OR REVIEWED BY ME.

FOR INFORMATIONAL PURPOSES ONLY

[illegible]



**DEPARTMENT OF NATURAL RESOURCES
COASTAL MANAGEMENT DIVISION**

P.O. BOX 44487
BATON ROUGE, LOUISIANA 70804-4487
(225)3427591
1-800-267-4019

COASTAL USE PERMIT/CONSISTENCY DETERMINATION

C.U.P. No.: P20051646

C.O.E. No.:

NAME: DOTD
P O BOX 94245 CUBICLE 502E
BATON ROUGE, LA 70804-9245
Attn: Traci Johnson

LOCATION: Orleans Parish, LA
Lat 30°09' 35.00"; Long -89°51' 18.50";

DESCRIPTION: The Louisiana Department of Transportation and Development plans for an advanced test pile and test shaft program to be conducted for the replacement of the I-10 Bridge over Lake Pontchartrain.

The driving and loading of the test piles (vertical capacity) will be done by using standard pile load tests with dynamic monitoring and dynamic analysis provided by the Department's Pavement and Geotechnical Services Section.

The piles are 36" PPC (precast prestressed concrete) piles and sufficient loading frames for conducting the standard test should be feasible.

In accordance with the rules and regulations of the Louisiana Coastal Resources Program and Louisiana R.S. 49, Sections 214.21 to 214.41, the State and Local Coastal Resources Management Act of 1978, as amended, the permitted agrees to:

1. Carry out, perform, and/or operate the use in accordance with the permit conditions, plans and specifications approved by the Department of Natural Resources.
2. Comply with any permit conditions imposed by the Department of Natural Resources.
3. Adjust, alter, or remove any structure or other physical evidence of the permitted use if, in the opinion of the Department of Natural Resources, it proves to be beyond the scope of the use as approved or is abandoned.
4. Provide, if required by the Department of Natural Resources, an acceptable surety bond in an appropriate amount to ensure adjustment, alteration, or removal should the Department of Natural Resources determine it necessary.
5. Hold and save the State of Louisiana, the local government, the department, and their officers and employees harmless from any damage to persons or property which might result from the use, including the work, activity, or structure permitted.
6. Certify that the use has been completed in an acceptable and satisfactory manner and in accordance with the plans and specifications approved by the Department of Natural Resources. The Department of Natural Resources may, when appropriate, require such certification to be given by a registered professional engineer.
7. All terms of the permit shall be subject to all applicable federal and state laws and regulations.
8. This permit, or a copy thereof, shall be available for inspection at the site of work at all times during operations.
9. The applicant will notify the Coastal Management Division of the date on which initiation of the permitted activity described under the "Coastal Use Description" began. The applicant shall notify the Coastal Management Division by mailing the enclosed green initiation card on the date of initiation of the coastal use.
10. Unless specified elsewhere in this permit, this permit authorizes the initiation of the coastal use described under "Coastal Use Description" for two years from the date of the signature of the Secretary or his designee. If the coastal use is not initiated within this two year period, then this permit will expire and the applicant will be required to submit a new application. Initiation of the coastal use, for purposes of this permit, means the actual physical beginning of the use of activity for which the permit is required. Initiation does not include preparatory activities, such as movement of equipment onto the coastal use site, expenditure of funds, contracting out of work, or performing activities which by themselves do not require a permit. In addition, the permittee must, in good faith and with due diligence, reasonably progress toward completion of the project once the coastal use has been initiated.
11. The following special conditions must also be met in order for the use to meet the guidelines of the Coastal Resources Program:



The test shaft program will be require special provisions to acquire the Osterberg Load test instrumentation, field construction and subsequent load testing.

There will be approximately seven (7) pile load tests and seven (7) drilled shaft load tests. Two (2) lateral load tests will also be conducted. All test pile and shaft locations are shown on the attached layout sheet.

Prior to the initiation of the Advanced Test pile/shaft Program the Department plans to take additional deep borings in the area of the new structure. Much of the design is based on the Geotechnical data from the original structure wich provided data only to a 100 foot depth in most cases.

Inorder to optimize the pile/shaft foundation due to the heavier loads required for the new structure we will take several new borings at the extended bridge ends and approximately 25 wash down borings (Drill down approximately 100-feet with no sampling and then test and sample for the next 60-feet) along the new alignment.

This will require the use of a barge operation for all but two of the borings. We should be able to relocate the soil borings along the new alignment.

After successful completion of the soil borings and test pile driving, any portion of this work not deem a permanent part of the new bridge structures, unless otherwise directed, shall be removed to not less than two (2) foot below natural ground surface.

- a. Our database indicates that the Gulf Sturgeon (*Acipenser oxyrinchus desotoi*) critical habitat occurs in your project area. The Gulf sturgeon is listed as threatened on both the federal and state species list. In Louisiana, Gulf sturgeon has been reported at rivers and lakes of the Lake Pontchartrain basin and adjacent estuarine areas. The Gulf sturgeon is an anodromous fish which migrates from salt water into large coastal rivers to spawn and spend the warm months. The majority of its life is spent in fresh water. Major population limiting factors are thought to include barriers (dams) to spawning habitats and habitat loss associated with the construction of water control structures, such as dams and sills. Other threats and potential threats identified include modifications to habitat associated with dredged material disposal, navigation maintenance activities, incidental take by commercial fishermen, and poor water quality associated with contamination. Please contact the USFWS to coordinate activities within this critical habitat unit.
- b. Manatees (*Trichechus manatus*) may occur in the surrounding water bodies of your site location. Manatees are large mammals inhabiting both fresh and salt water. Although most manatees are year round residents of Florida or Central America, they have been known to migrate to areas along the Atlantic and Gulf coast during the summer months. Manatees are an endangered species protected under the Endangered Species Act of 1973 and the Federal Marine Mammal Protection Act of 1972. In Louisiana, taking or harassment of the manatee is a violation of state and federal laws. Critical habitat for manatees includes marine submergent vascular vegetation (sea-grass beds). Areas with sea-grass beds should be avoided during project activities. Report all manatee sightings to the Louisiana Department of Wildlife and Fisheries at 225-765-2821 or 1-800-442-2511.
- c. Permittee is subject to all applicable state laws related to damages which are demonstrated to have been caused by this action.
- d. Permittee shall allow representatives of the Coastal Management Division or authorized agents to make periodic, unannounced inspections to assure the activity being performed is in accordance with the conditions of this permit.
- e. Permittee shall comply with all applicable state laws regarding the need to contact the Louisiana One Call (LOC) system (1-800-272-3020) to locate any buried cables and pipelines.



- f. This permit authorizes the initiation of the Coastal Use described under "Coastal Use Description" for two (2) years from the date of the signature of the Secretary or his designee. Initiation of the Coastal Use, for purposes of this permit, means the actual physical beginning of the use or activity for which the permit is required. Initiation does not include preparatory activities, such as movement of equipment onto the Coastal Use site, expenditure of funds, contracting out of work, or performing activities which by themselves do not require a permit. In addition, Permittee must, in good faith and with due diligence, reasonably progress toward completion of the project once the Coastal Use has been initiated. If the Coastal Use is not initiated within this two (2) year period, an extension may be granted pursuant to the requirements contained in the Rules and Procedures for Coastal Use Permits (Title 43:1.723.D.). Please note that a request for permit extension MUST be made no sooner than one hundred eighty (180) days and no later than sixty (60) days prior to the expiration of the permit.

The expiration date of this permit is five (5) years from the date of the signature of the Secretary or his designee.

Upon expiration of this permit, a new Coastal Use Permit will be required for completion of any unfinished or uncommenced work items and for any maintenance activities involving dredging or fill that may become necessary. Other types of maintenance activities may also require a new Coastal Use Permit.

***** End of Conditions *****

By accepting this permit the applicant agrees to its terms and conditions.

I affix my signature and issue this permit this 4th day of April, 2006.

DEPARTMENT OF NATURAL RESOURCES

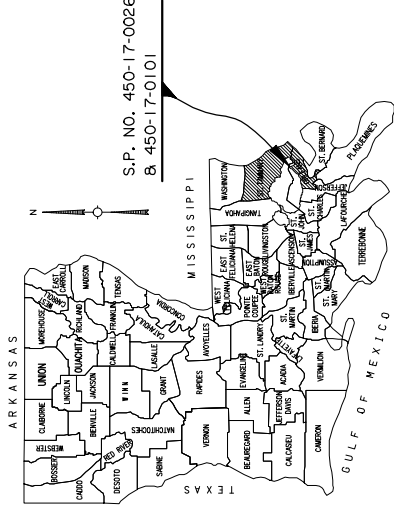
Jim Rives, Acting Administrator
Coastal Management Division

This agreement becomes binding when signed by the Administrator of the Coastal Management Division, Department of Natural Resources.

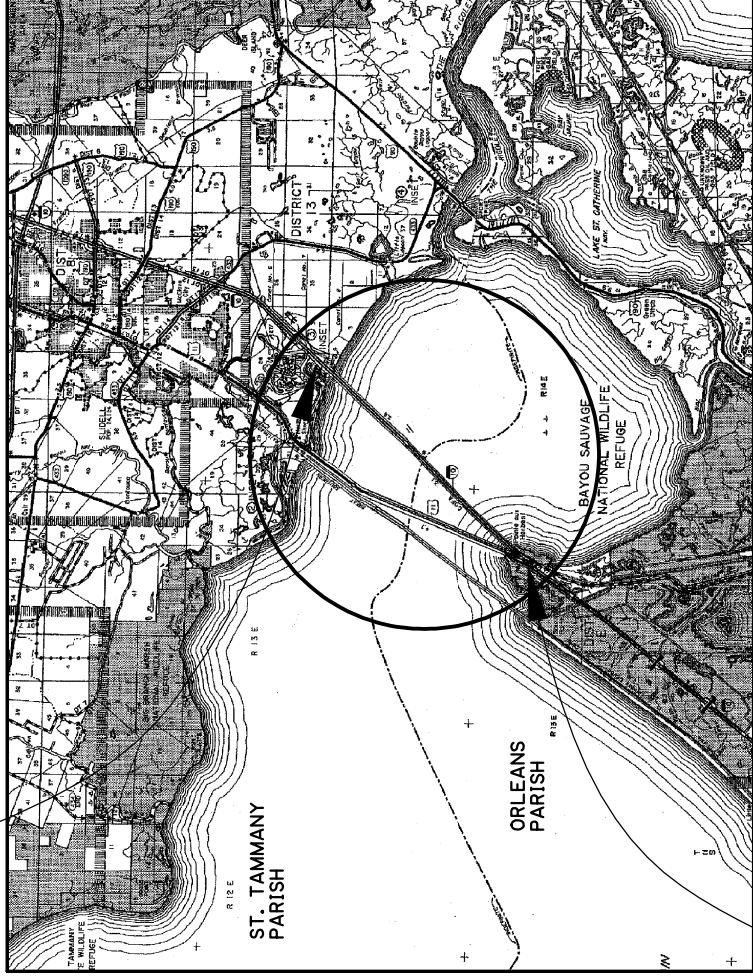
ADVANCED TEST PILE AND TEST SHAFT
I-10 OVER LAKE PONTCHARTRAIN

ORLEANS & ST. TAMMANY PARISHES

I-10



END S.P. 450-17-0026
& 450-18-0101



BEGIN S.P. 450-17-0026
& 450-18-0101

LOCATION MAP



STATE OF LOUISIANA
DEPARTMENT OF TRANSPORTATION
AND DEVELOPMENT

ADVANCED TEST PILE AND TEST SHAFT
I-10 OVER LAKE PONTCHARTRAIN
ORLEANS & ST. TAMMANY PARISHES
STATE PROJECT 450-17-0026

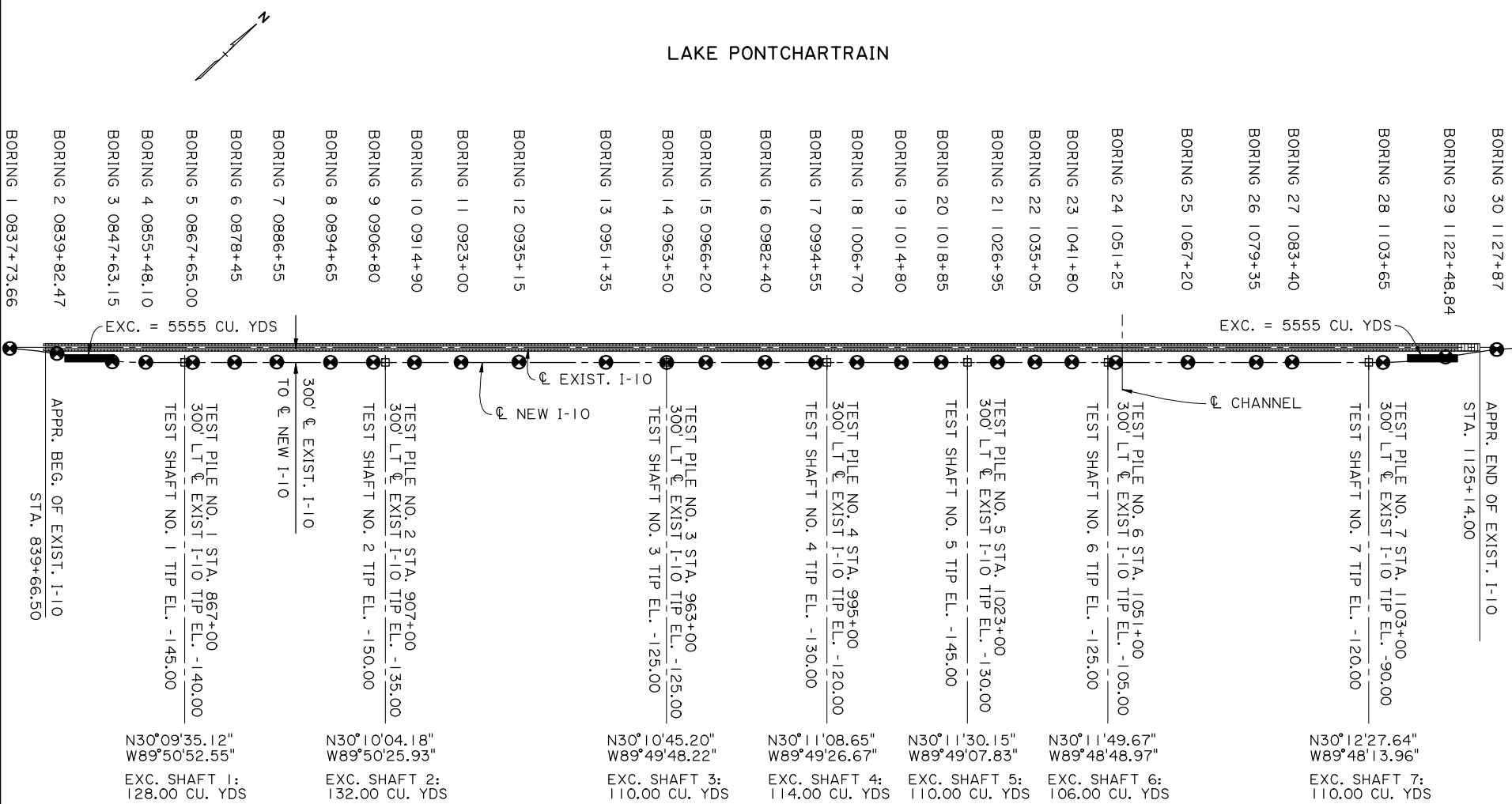
STATE OF LOUISIANA
DEPARTMENT OF TRANSPORTATION
AND DEVELOPMENT

ADVANCED TEST PILE AND TEST SHAFT
I-10 BRIDGE OVER LAKE PONTCHARTRAIN
STATE PROJECTS 450-17-0026 & 450-18-0101

BRIDGE LOCATED AT
WATERWAY MILE
(N/A)

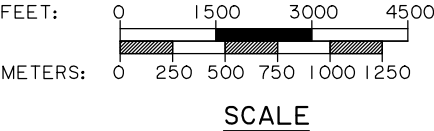
DATE OCTOBER 4 2005
SHEET 2 of 3

LAKE PONTCHARTRAIN



TOTAL EXCAVATION = 11920.00 CU. YDS

ANNUAL MEAN HIGH WATER = 3.93' (NAVD 88)
ANNUAL MEAN LOW WATER = -0.55' (NAVD 88)



CHECK PRINTS

R:\450-17-0025\Advance test pile program\03_advance test pile - cross section.dgn

20-DEC-2005

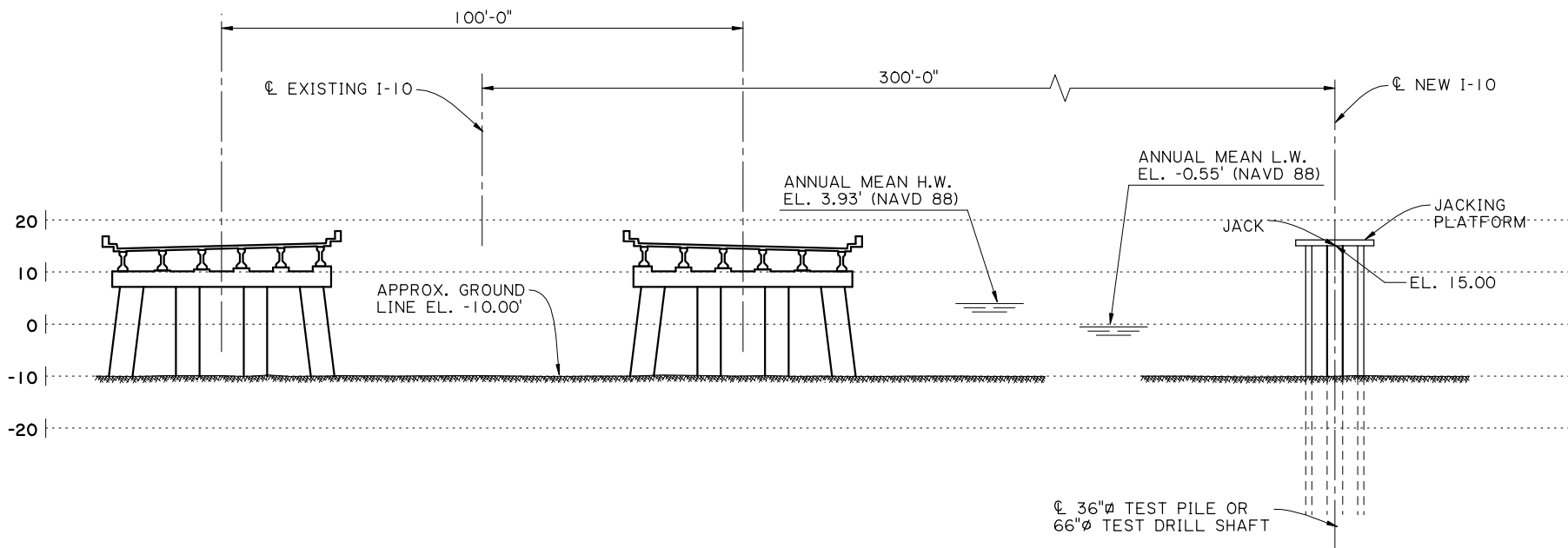
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STATE OF LOUISIANA
DEPARTMENT OF TRANSPORTATION
AND DEVELOPMENT

ADVANCED TEST PILE AND TEST SHAFT
I-10 BRIDGE OVER LAKE PONTCHARTRAIN
STATE PROJECTS 450-17-0026 & 450-18-0101

BRIDGE LOCATED AT
WATERWAY MILE
(N/A)

DATE OCTOBER 4 2005
SHEET 3 of 3



CROSS SECTION

